

- Type 701**
- Type 702**
- Type 703**
- Type 704**
- Type 705**
- Type 707**
- Type 711**

Description

These insulations are made of inorganic glass fibers with a thermosetting resin binder and formed into flexible, semi-rigid or rigid rectangular boards of varying densities. Types 703, 704 and 705 are available with factory-applied FRK or ASJ facings. Both facings are vapor retarders and provide a neat, finished appearance in mechanical applications.

Uses

701, 702, 711 – Lightweight, resilient, flexible insulation in sheet form, used on vessels with irregular surfaces where an exterior finish will be supported mechanically. 703, 704 – Semi-rigid boards for use on equipment, vessels and air conditioning ductwork. 705 – A high strength rigid board for use on chillers, hot and cold equipment, and heating and air conditioning ductwork where high abuse resistance and good appearance are required. 707 – For use in acoustical wall panels and specialized ceiling applications.

Availability

FIBERGLAS® 700 Series Insulations are available in standard 24"x48" (610mm x 1219mm) boards in thicknesses from 1" (25mm) to 4" (102mm) in 1/2" (13mm) increments. Maximum thickness, Type 705, is 3" (76mm). Types 702 and 704 are made-to-order products.

Features/Benefits

Thermal Efficiency

FIBERGLAS 700 Series Insulations save energy and reduce heat transfer, lowering operating costs. Available in five densities, providing a selection of products to meet specific performance, appearance and economic requirements.

Structural Integrity

FIBERGLAS 700 Series Insulations resist damage and maintain structural integrity and efficiency. Thickness stays uniform.

Excellent Acoustical Properties

This versatile group of FIBERGLAS insulation boards efficiently reduces sound transmission.

Specification Compliance

- ASTM C553, Mineral Fiber Blanket Thermal Insulation, Type III – Type 701, 711
- ASTM C612, Mineral Fiber Block & Board Thermal Insulation, Types IA, IB – Types 702, 703, 704, 705, 707
- ASTM C795, Thermal Insulation For Use Over Austenitic Stainless Steel*
- ASTM C1136, Flexible Low Permeance Vapor Retarders for Thermal Insulation, Type I: ASJ; Type II: FRK
- Nuclear Regulatory Commission Guide 1.36, Non-Metallic Thermal Insulation*
- New York City MEA No. 227-83 – Types 703 & 705, plain and FRK-faced
- CAN/CGSB-51.10 (withdrawn, replaced by ASTM C612) – Type I, Class I – Types 703, 704
- NFPA 90A and 90B
- California Insulation Quality Standards CA-T052

* Preproduction qualification testing complete and on file. Chemical analysis of each production lot required for total conformance.

Physical Property Data

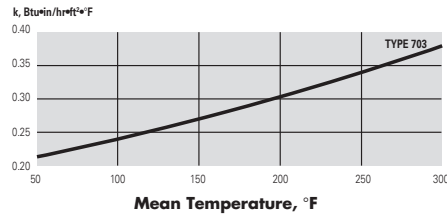
Property	Test Method	Value
Equipment operating temperature limitation	ASTM C411	0 to 450°F* (-18°C to 232°C)*
Insulation jacket temperature limitation	ASTM C1136	-20°F to 150°F (-29°C to 66°C)
Jacket permeance	ASTM E96, Proc. A	0.02 perm
Jacket puncture resistance	ASTM D781	FRK: 25 units; ASJ: 50 units
Compressive strength (minimum)	ASTM C165	Type 703: 25 lb/ft ² (1197 Pa) Type 704: 60 lb/ft ² (2873 Pa) Type 705: 90 lb/ft ² (4309 Pa)
at 10% deformation		225 lb/ft ² (10.8 kPa)
at 25% deformation		
Water vapor sorption	ASTM C1104	<2% by weight at 120°F (49°C), 95% R.H.
Nominal density	ASTM C167	Type 701: 1.5 pcf (24 kg/m ³) Type 711: 1.65 pcf (26 kg/m ³) Type 702: 2.3 pcf (37 kg/m ³)
	ASTM C303	Type 703: 3.0 pcf (48 kg/m ³) Type 704: 4.2 pcf (67 kg/m ³) Type 705: 6.0 pcf (96 kg/m ³) Type 707: 7.0 pcf (112 kg/m ³)
Surface burning characteristics	UL 723,** ASTM E 84 or CAN/ULC-S102-M**	Flame spread 25** Smoke developed 50

* Maximum thickness at 450°F (232°C): Type 701, 702: 6" (152mm); Type 703, 704, 705: 4" (102mm).

**The surface burning characteristics of these products have been determined in accordance with UL 723, ASTM E 84 or CAN/ULC-S102-M. This standard should be used to measure and describe the properties of materials, products or assemblies in response to heat and flame under controlled laboratory conditions and should not be used to describe or appraise the fire hazard or fire risk of materials, products or assemblies under actual fire conditions. However, results of this test may be used as elements of a fire risk assessment which takes into account all of the factors which are pertinent to an assessment of the fire hazard of a particular end use. Values are reported to the nearest 5 rating.

FIBERGLAS® 700 Series Insulations

Thermal Conductivity



Apparent thermal conductivity curve determined in accordance with ASTM Practice C 1045 with data obtained by ASTM Test Method C 177. Values are nominal, subject to normal testing and manufacturing tolerances.

Mean Temp. °F	k, Btu-in/hr-ft²-°F					Mean Temp. °C	λ, W/m-°C				
	701	702	703	704	705		701	702	703	704	705
50	0.22	0.21	0.21	0.22	0.22	10	0.032	0.030	0.030	0.032	0.032
75	0.24	0.23	0.23	0.23	0.23	25	0.035	0.032	0.033	0.034	0.034
100	0.26	0.24	0.24	0.25	0.25	50	0.040	0.036	0.036	0.038	0.037
150	0.30	0.27	0.27	0.28	0.27	75	0.045	0.041	0.040	0.042	0.041
200	0.35	0.31	0.30	0.31	0.30	100	0.052	0.046	0.045	0.046	0.045
250	0.40	0.36	0.34	0.35	0.33	125	0.059	0.053	0.050	0.051	0.049
300	0.46	0.41	0.38	0.39	0.37	150	0.067	0.060	0.055	0.056	0.053

Thermal Performance, ASTM C 680 (Type 703)

Thickness, in. (mm)	Operating Temperature, °F (°C)									
	250 (121)		300 (149)		350 (177)		400 (204)		450 (232)	
	HL	ST	HL	ST	HL	ST	HL	ST	HL	ST
1.0 (25)	27	98	42	106	57	114	75	123	95	133
1.5 (38)	19	93	29	99	40	105	52	112	66	119
2.0 (51)	15	90	22	95	31	100	40	105	50	111
2.5 (64)	12	88	18	92	25	96	32	101	41	106
3.0 (76)	10	87	15	91	21	94	27	98	34	102
3.5 (89)	9	86	13	89	18	92	23	96	30	99
4.0 (102)	8	86	11	88	16	91	21	94	26	97

The above table provides approximate heat loss values (HL), Btu/hr-ft², and Surface Temperatures (ST), °F, for flat surfaces. Values are based on horizontal heat flow, vertical flat surface, 80°F ambient temperature, still air, ASJ jacket. To convert heat loss values to W/m², multiply values by 3.15. To convert surface temperatures, use the formula: °C = (°F-32)/1.8. For similar information using other assumptions, contact your Owens Corning Representative.

Sound Absorption Coefficients, ASTM C 423

Mounting: Type A – Material placed against a solid backing.

Product Type	Thickness, in. (mm)	Octave Band Center Frequencies, Hz							NRC
		125	250	500	1000	2000	4000		
701, plain	1 (25)	.17	.33	.64	.83	.90	.92	.70	
	2 (51)	.22	.67	.98	1.02	.98	1.00	.90	
703, plain	1 (25)	.11	.28	.68	.90	.93	.96	.70	
	2 (51)	.17	.86	1.14	1.07	1.02	.98	1.00	
705, plain	1 (25)	.02	.27	.63	.85	.93	.95	.65	
	2 (51)	.16	.71	1.02	1.01	.99	.99	.95	
703, FRK	1 (25)	.18	.75	.58	.72	.62	.35	.65	
	2 (51)	.63	.56	.95	.79	.60	.35	.75	
705, FRK	1 (25)	.27	.66	.33	.66	.51	.41	.55	
	2 (51)	.60	.50	.63	.82	.45	.34	.60	
703, ASJ	1 (25)	.17	.71	.59	.68	.54	.30	.65	
	2 (51)	.47	.62	1.01	.81	.51	.32	.75	
705, ASJ	1 (25)	.20	.64	.33	.56	.54	.33	.50	
	2 (51)	.58	.49	.73	.76	.55	.35	.65	

Values given are for design approximations only; production and test variabilities will alter results. Specific designs should be evaluated in end-use configurations.



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Pub. No. 30010032. Printed in Canada January 2007.
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Application Recommendation

Types 701 and 702 are lightweight, unfaced, flexible insulations in batt form for use on vessels having irregular surfaces, where the compressive strength is not a performance criterion. Types 703, 704 and 705 are board insulations usually impaled over welded pins on flat surfaces. They are cut in segments and banded in place on irregular surfaces. Unfaced boards are normally finished with reinforced insulating cement or weatherproof mastic.

ASJ- or FRK-faced insulation boards shall be applied using mechanical fasteners such as weld pins or speed clips. Fasteners shall be located not less than 3" (75mm) from each edge or corner of the board. Pin spacing along the equipment should be no greater than 12" (300mm) on centers. Additional pins or clips may be required to hold the insulation tightly against the surface where cross breaking is used for stiffening. Weld pin lengths must be selected to ensure tight fit but avoid "oil-canning."

In multiple layer applications, use faced material on outer layer only. Where a vapor retarder is required, cover pins and clips with vapor sealing, pressure-sensitive patches matching insulation facing. Rub hard with a plastic sealing tool to ensure a tight bond and a vapor seal.

All insulation joints should be sealed with pressure-sensitive joint sealing tape to match the insulation facing. Rub hard with a plastic sealing tool to effect a tight bond. Recommended practice suggests 3" (76mm) wide tape on flat surfaces or where edges are shiplapped and stapled. Use 5" (102mm) wide tape in lieu of shiplapping. If insulation is being applied to sheet metal duct work, all sheet metal joints must be sealed prior to insulating. Glass fabric and mastic may be used in lieu of pressure-sensitive tape.